MULTILAYER INKJET RECORDING ELEMENT WITH POROUS POLYESTER PARTICLES

CROSS REFERENCE TO RELATED APPLICATIONS

Reference is made to commonly assigned, co-pending U.S. Patent Applications:

PRA 3/16/06 Serial Number 10/027,701 by Leon et al., ~~(Docket 82842)~~ filed of even date herewith entitled "Method of Preparation of Porous Polyester Particles"; now U.S.P.N. 6,780,942 and

PRA 3/16/06 Serial Number 10/028,130 by Landry-Coltrain et al., (Docket 82966) filed of even date herewith entitled "Small Porous Polyester Particles for Inkjet Use.

PRA 3/16/06

FIELD OF THE INVENTION

The invention relates to an inkjet recording element, more particularly to a multilayer inkjet recording element containing porous polyester particles.

BACKGROUND OF THE INVENTION

In a typical inkjet recording or printing system, ink droplets are ejected from a nozzle at high speed towards a recording element or medium to produce an image on the medium. The ink droplets, or recording liquid, generally comprise a recording agent, such as a dye or pigment, and a large amount of solvent. The solvent, or carrier liquid, typically is made up of water, an organic material such as a monohydric alcohol, a polyhydric alcohol or mixtures thereof.

An inkjet recording element typically comprises a support having on at least one surface thereof at least one ink-receiving or image-forming layer and includes those intended for reflection viewing, which have an opaque support, and those intended for viewing by transmitted light, which have a transparent support.

An inkjet recording element that simultaneously provides an almost instantaneous ink dry time and good image quality is desirable. However, given the wide range of ink compositions and ink volumes that a recording element needs to accommodate, these requirements of inkjet recording media are difficult to achieve simultaneously.

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A more preferred method of preparation is described in ~~Serial Number~~ ~~_____~~ by Leon et al., ~~(Docket 82842) filed of even date herewith~~ entitled "Method of Preparation of Porous Polyester Particles", in which the crosslinked, porous polyester particles are prepared by crosslinking an unsaturated precursor polyester within an oil-in-water emulsion in the presence of a water-immiscible organic solvent. The crosslinking reaction is a radical-initiated polymerization of an ethylenically unsaturated monomer, which readily copolymerizes with the unsaturated units in the precursor polyester. The precursor polyester can be organic-soluble, in which case an added emulsifying agent is necessary. In another embodiment of this method, the precursor polyester can be water-soluble, water-dispersible, or amphiphilic in character, in which case the precursor polyester acts as the emulsifying species and an added emulsifying agent is merely optional. The water-immiscible organic solvent is removed to yield a dispersion of porous, crosslinked, polyester-containing particles.

The precursor polyesters useful for the preparation of the porous polyester particles of this invention are branched or unbranched, contain chemical unsaturation, and are soluble either in water-immiscible organic solvents or in water. Optionally, the precursor polyester may be self-emulsifying in water or amphiphilic or surfactant-like in character. The precursor polyesters may have any glass transition temperature, provided the precursor polyester fulfills the solubility requirements. Preferably, the number average molecular weight (Mn) is between 1,000 and 30,000 gm/mole.

As is well known in the art, polyesters are condensation products of polybasic acids or of corresponding acid equivalent derivatives such as esters, anhydrides or acid chlorides and polyhydric alcohols. It will be known that whenever "diacids" or "polyacids" are referred to in this document, that corresponding acid equivalent derivatives such as esters, anhydrides or acid chlorides are also included by reference. Polymerizable unsaturation may be introduced into the molecule by the selection of a polybasic acid or polyhydric alcohol, which contains α,β-ethylenic unsaturation. In most cases, the unsaturation will be contained within the polybasic acid unit. Optionally, one or more additional polyacids common in the art of polycondensation may be used in